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CURRENT INDUSTRIAL REPORTS

Farm Machinery and Lawn and Garden Equipment

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SUMMARY OF FINDINGS

During 1988, factory shipments of farm machinery and equipment, including parts and attachments produced by original equipment manufactures (OEM), totaled $6,180.5 million, an increase of 29 percent from 1987 shipments of $4,804.9 million. The 1988 total included planting, seeding, and fertilizing machinery, $495.3 million, an increase of 21 percent from the 1987 level of shipments; harrows, rollers, pulverizers and stalk cutters, $319.4 million, an increase of 22 percent; plows and listers, $114.7 million, an increase of 54 percent; harvesting machinery, $1,470.3 million, an increase of 15 percent; haying machinery, $576.3 million, an increase of 33 percent; farm dairy machines, sprayers and dusters, farm elevators, and farm blowers, $463.5 million, an increase of 27 percent; and all other farm machinery and equipment (including farm tractors), $2,741.0 million, an increase of 39 percent.

The dollar value of factory shipments of commercial turf and ground equipment and consumer lawn, garden, and snow equipment, including parts, was $4,598.5 million in 1988, an increase of 2 percent over 1987 shipments of $4,494.5 million. The 1988 total included commercial turf and grounds mowing equipment, $476.8 million, an increase of 15 percent over the 1987 level of shipments; commercial turf and grounds care equipment, $116.2 million, an increase of 18 percent; consumer nonriding lawn, garden, and snow equipment and parts, $2,012.0 million, an increase of 5 percent; and consumer riding lawn, garden, and snow equipment and parts, $1,993.5 million, a decrease of 4 percent.

A description of the survey methodology and related information appears on page 15.

Table 1. VALUE OF SHIPMENTS OF FARM MACHINERY AND LAWN AND GARDEN EQUIPMENT, BY TYPE OF MACHINERY OR EQUIPMENT: 1979 TO 1988

(Millions of current dollars)

Product description[1]	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979
Wheel tractors, farm type	(D)	958.6	893.4	1,154.5	2,045.3	1,720.7	2,215.5	3,066.4	2,761.5	2,901.7
Farm dairy machines, sprayers and dusters, farm elevators and farm blowers	463.5	364.7	371.7	403.6	428.2	417.2	481.0	526.4	538.6	553.2
Planting, seeding, and fertilizing machinery	495.3	409.1	371.2	453.3	601.1	447.5	673.1	802.4	680.7	652.9
Harvesting machinery	1,470.3	1,282.3	1,230.1	1,190.8	1,424.6	1,478.8	2,069.6	2,579.9	2,207.1	2,133.5
Haying machinery	576.3	433.7	383.4	498.1	611.6	541.9	545.1	711.7	778.2	674.6
Plows and listers	114.7	74.6	75.3	110.9	152.5	129.7	151.9	233.2	245.9	273.5
Harrows, rollers, pulverizers, and similar equipment	133.1	99.9	99.2	166.0	369.7	341.0	360.5	522.5	555.4	601.3
All other farm machinery and equipment[2]	2,927.3	1,182.0	931.3	1,047.0	1,204.3	1,135.9	1,253.6	1,560.6	1,645.1	1 822.4
Commercial turf and grounds mowing and care equipment	593.0	514.6	412.8	376.7	333.8	263.2	237.8	231.9	236.1	152.7
Consumer lawn, garden, and snow equipment	4,005.4	3,979.9	3,385.8	3,155.1	2,978.1	2,475.4	2,248.3	2,067.4	2,238.0	2,491.2

(D) Data withheld to avoid disclosing figures of individual companies.

[1] Each type of farm machinery includes parts and attachments.
[2] Includes irrigation systems, and for year 1988 wheel tractors, farm type.

Address inquiries concerning these figures to U.S. Department of Commerce, Bureau of the Census, Industry Division, Washington, D.C. 20233, or call Stephen Pepe, (301) 763-5353.

For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Table 2. VALUE OF MANUFACTURERS' SHIPMENTS OF FARM MACHINERY AND LAWN AND GARDEN EQUIPMENT, BY PRODUCT GROUP: 1984 TO 1988

(Thousands of dollars)

Product group and year	Total	Complete units	Attachments and parts
Total:			
1988	10,778,988	8,597,298	2,181,690
1987	9,299,399	7,341,159	1,958,240
1986	8,154,241	6,485,160	1,669,081
1985	8,557,280	(NA)	(NA)
1984	10,149,021	(NA)	(NA)
Total farm machinery:			
1988	6,180,516	4,800,670	1,379,846
1987	4,804,864	3,625,626	1,179,238
1986	4,355,565	3,327,957	1,027,608
1985	5,402,166	(NA)	(NA)
1984	7,170,967	(NA)	(NA)
Wheel tractors, farm type:			
1988	[1] [2]233,909	([1])	[2]233,909
1987	958,597	742,454	216,143
1986	893,432	756,347	137,085
1985	1,154,527	1,154,527	(NA)
1984	2,045,298	2,045,298	(NA)
Farm dairy machines and equipment:			
1988	102,448	49,840	52,608
1987	76,584	30,263	46,321
1986	77,131	49,794	27,337
1985	92,308	(NA)	(NA)
1984	105,430	(NA)	(NA)
Sprayers and dusters:			
1988	290,854	196,125	94,729
1987	214,484	153,196	61,288
1986	212,566	159,690	52,876
1985	244,412	186,790	57,622
1984	252,992	195,400	57,592
Farm elevators and blowers:			
1988	70,221	56,566	13,655
1987	73,659	61,912	11,747
1986	82,049	70,365	11,684
1985	66,877	52,338	14,539
1984	69,773	56,462	13,311
Planting, seeding, and fertilizing machinery:			
1988	495,274	359,427	135,847
1987	409,082	299,468	109,614
1986	371,210	268,026	103,184
1985	453,250	330,504	122,746
1984	801,094	459,476	141,618
Harvesting machinery:			
1988	1,470,253	1,066,310	403,943
1987	1,282,315	960,326	321,989
1986	1,230,124	917,052	313,072
1985	1,190,831	889,760	301,071
1984	1,424,639	1,112,623	312,016
Haying machinery:			
1988	576,255	438,983	137,272
1987	433,671	309,861	123,810
1986	383,434	271,676	111,758
1985	498,116	(NA)	(NA)
1984	611,568	(NA)	(NA)
Plows:			
1988	114,724	83,701	31,023
1987	74,643	52,406	22,237
1986	75,310	47,059	28,251
1985	110,984	77,590	33,394
1984	152,464	108,211	44,253
Harrows, rollers, pulverizers, and similar equipment:			
1988	133,138	110,721	22,417
1987	99,918	75,334	24,584
1986	99,238	75,425	23,813
1985	166,014	130,642	35,372
1984	242,884	199,656	43,228
Cultivators and weeders:			
1988	152,529	87,914	64,615
1987	104,619	53,768	50,851
1986	81,103	34,270	46,833
1985	139,985	79,487	60,498
1984	175,355	107,932	67,423
Stalk shredders and cutters or rotary mowers:			
1988	186,265	153,568	32,697
1987	161,462	131,557	29,905
1986	112,073	83,171	28,902
1985	120,581	93,496	27,085
1984	126,797	97,067	29,730
Machines for preparing crops for market or for use:			
1988	192,038	158,153	33,885
1987	208,189	169,454	38,735
1986	203,657	155,576	48,081
1985	193,727	156,597	37,130
1984	197,790	153,321	44,469
Farm poultry equipment:			
1988	122,977	99,459	23,518
1987	116,763	90,252	26,511
1986	93,420	73,541	19,879
1985	109,000	89,910	19,090
1984	120,646	102,677	17,969
Hog equipment:			
1988	85,595	74,181	11,414
1987	66,415	57,706	8,709
1986	41,966	32,714	9,250
1985	35,938	31,812	4,126
1984	44,038	37,732	6,306
Other barn and barnyard equipment:			
1988	171,875	147,830	24,045
1987	164,142	131,329	32,813
1986	129,146	102,377	26,769
1985	156,768	124,540	32,228
1984	168,912	131,732	37,180
Farm wagons and other farm transportation equipment:			
1988	[1]1,483,766	[1]1,469,965	[1]13,801
1987	144,632	128,415	[1]16,217
1986	109,291	93,115	[1]16,176
1985	105,480	90,844	[1]14,636
1984	133,386	102,205	[1]31,181
Irrigation systems:			
1988	298,395	247,927	[2]50,468
1987	215,689	177,925	[2]37,764
1986	160,417	137,759	22,658
1985	186,654	186,654	(NA)
1984	384,138	384,138	(NA)
Commercial turf and grounds mowing equipment:			
1988	476,798	362,835	[2]113,963
1987	416,240	331,115	[2]85,125
1986	347,482	263,160	84,322
1985	317,566	235,703	81,863
1984	280,891	204,367	76,524
Other commercial turf and grounds care equipment:			
1988	116,238	93,903	[2]22,335
1987	98,346	80,961	[2]17,385
1986	65,354	57,230	8,124
1985	59,148	50,035	9,113
1984	52,872	44,693	8,189
Total lawn and garden equipment:			
1988	4,005,436	3,339,890	665,546
1987	3,979,949	3,303,457	676,492
1986	3,385,840	2,836,813	549,027
1985	3,193,114	2,659,397	495,717
1984	2,978,054	2,499,496	478,558
Consumer nonriding lawn, garden, and snow equipment:			
1988	2,011,977	1,787,976	224,001
1987	1,911,663	1,716,821	194,842
1986	1,743,210	1,581,631	161,779
1985	1,688,842	1,529,044	159,598
1984	1,614,573	1,430,452	184,121
Consumer riding lawn, garden, and snow equipment:			
1988	1,993,459	1,551,914	441,545
1987	2,068,286	1,586,636	481,650
1986	1,642,630	1,255,382	387,248
1985	1,466,472	1,130,353	336,119
1984	1,363,481	1,049,044	314,437

(NA) Not available.

[1] Includes operator cabs in the attachments and parts for this item.

Table 3. MANUFACTURERS' SHIPMENTS OF FARM MACHINERY AND LAWN AND GARDEN EQUIPMENT, BY TYPE: 1988 AND 1987

(Quantity in units; value in thousands of dollars)

Product code	Product description	Number of companies	1988		1987	
			Quantity	Value	Quantity	Value
35231 --	Wheel tractors (except contractors' off-highway wheel tractors, garden tractors, turf tractors, and motor tillers) and attachments	(NA)	(X)	[1]	(X)	745,762
	Wheel tractors, farm type (power take off hp)	(NA)				
	2-wheel drive (including front wheel assist types)	7				
35231 01	Under 40 PTO hp (45 PTO kW)	4				
35231 03	40-79 PTO hp (45-59 PTO kW)	1				
35231 05	80-99 PTO hp (60-74 PTO kW)	1				
35231 07	100-119 PTO hp (75-89 PTO kW)	3				
35231 09	120-139 PTO hp (90-104 PTO kW)	3				
35231 11	140-159 PTO hp (105-119 PTO kW)	3				
35231 13	160-179 PTO hp (120-134 PTO kW)	3			20,937	742,454
35231 15	180 PTO hp and over (135 PTO kW and over)	3	(D)	[1]		
	4-wheel drive	4				
35231 31	Under 200 PTO hp (under 150 PTO kW)	3				
35231 33	200-249 PTO hp (150-185 PTO kW)	4				
35231 35	250 PTO hp and over (186 PTO kW and over)	2				
35231 87	Attachments for wheel tractors, farm type	6			(X)	3,308
35239 26	Parts for wheel tractors, farm type	13	(X)	233,909	(X)	212,835
35232 --	Farm dairy machines, sprayers, dusters, elevators, and farm blowers	(NA)	(X)	348,759	(X)	r278,851
35232 pt.	Farm dairy machines and equipment	17	(X)	79,997	(X)	r56,137
	Mechanical installations:					
35232 03	Vacuum pumping outfits for milking machines with or without motors and/or reserve tanks	8	5,874	7,731	5,912	5,644
35232 04	Milking machines, complete, suspended and floor type bucket, single and double units	3				
35232 08	Pipeline milking units, complete, including claws, shells, inflations, air tubes, with or without pulsator	8	[2]36,719	[2]16,549	31,605	15,208
35232 11	Cream separators	-	-	-	-	-
35232 12	Other farm dairy machines and equipment	10	18,399	25,560	18,914	r9,411
35232 16	Attachments for farm dairy machines and equipment	7	(X)	30,157	(X)	25,874
35239 30	Parts for farm dairy machines and equipment, replacement units only	11	(X)	22,451	(X)	20,447
35232 pt.	Sprayers and dusters	80	(X)	209,911	(X)	158,337
	Power sprayers, field and row crop types only:					
35232 19	Self-propelled	15	1,808	73,303	1,081	r35,381
	Tractor mounted:					
35232 20	Piston pump type, all types of mounted tank	12	2,339	4,145	2,060	3,327
	Nonpiston pump type:					
35232 22	Rear mounted tank	18	4,971	4,222	4,551	r3,670
35232 23	Other than rear mounted tank	15	2,331	3,057	1,931	2,091
	Other than tractor mounted:					
	Piston pump type:					
	Power take-off driven:					
35232 24	Over 4 and under 11 gallons per minute (g.p.m.)	5	628	1,721	844	r2,140
35232 25	11 g.p.m. and over	10				
	Engine driven:					
35232 26	Over 4 and under 11 g.p.m.	6	608	812	1,415	r992
35232 27	11 g.p.m. and over	4				
35232 28	Nonpiston pump type	13	1,947	3,573	1,602	2,741
35232 29	Other power sprayers, over 4 g.p.m.	6	520	1,172	502	1,173
	Power sprayers, other than row crop and field types, over 4 g.p.m.:					
35232 31	Power take-off driven	13	1,816	4,071	1,921	5,664
35232 32	Engine driven	15	4,688	5,688	4,263	6,192
	Air carried type power sprayers (field, row crop, and orchard types):					
35232 33	Complete units	9	2,298	8,014	1,696	10,968
35232 34	Attachment type	1				
	Foggers and mist sprayers portable:					
35232 35	Foggers thermal under 16 gallons/hour output	3	66,799	8,517	65,413	9,122
35232 36	Mist sprayers under 16 gallons/hour output, (nonthermal)	8				
	Hand pulled and garden type 4 g.p.m. and under:					
35232 37	16 gallon tank capacity and under	14	12,730	1,887	15,764	2,494
35232 38	Tank capacity over 16 gallon	11	6,672	2,745	4,809	1,816
	Sprayers, agricultural hand:					
35232 39	Under 1 gallon	5	528,598	1,781	515,050	1,518
	1 gallon and over:					
35232 41	Compressed air or gas	7	3,830,094	55,137	r3,372,773	48,049
35232 42	Knapsack, liquid pump	7	[2]23,566	[2]1,280	r37,905	r1,844
35232 43	Hose-end and flame sprayers	6	1,474,790	2,903	1,211,386	r2,649
35232 48	Sprayer pumps (bucket, barrel, slide, etc.)	4	17,727	278	17,288	267

See footnotes at end of table.

Table 3. MANUFACTURERS' SHIPMENTS OF FARM MACHINERY AND LAWN AND GARDEN EQUIPMENT, BY TYPE: 1988 AND 1987--Continued

(Quantity in units; value in thousands of dollars)

Product code	Product description	Number of companies	1988		1987	
			Quantity	Value	Quantity	Value
	Sprayers and dusters--Continued					
35232 52	Dusters, power, all types	4	944	307	1,277	508
	Dusters, hand:					
35232 53	Crank or knapsack	2				
35232 54	Plunger	4	204,947	992	165,530	955
35232 55	Other	1				
35232 56	All other sprayers	15	(X)	10,720	(X)	9,650
35232 57	Attachments for sprayers and dusters	20	(X)	13,786	(X)	5,141
35239 35	Parts for sprayers and dusters, replacement units only	43	(X)	80,943	(X)	56,147
35232 pt.	Farm elevators and blowers	61	(X)	58,851	(X)	r64,377
	Farm elevators, portable:					
35232 60	Single chain	11	1,726	900	1,629	930
35232 63	Double chain	11	6,720	2,611	6,139	2,672
	Auger type:					
35232 64	Under 6 inches diameter	9	b8,372	b1,321	9,269	1,015
35232 65	6 inches diameter	15	b10,879	b7,077	a7,435	a4,696
35232 66	Over 6 inches diameter	14	11,799	13,822	9,776	16,997
35232 73	Other farm elevators, including stationary	29	8,064	20,361	r6,605	r26,460
35232 74	Other farm blowers, including forage blowers, combination grain and forage blowers	9	3,452	10,474	2,907	a9,131
35232 75	Attachments for farm elevators and blowers	13	(X)	2,285	(X)	2,476
35239 40	Parts for farm elevators and for grain and forage blowers, replacement units only	28	(X)	11,370	(X)	9,271
35233 --	Planting, seeding, and fertilizing machinery	134	(X)	380,614	(X)	321,775
	Corn planters, corn and cotton planters, and lister planters:					
	Full type:					
35233 16	Under 6-row (quantity in number of rows)	8	4,405	10,952	7,083	18,463
35233 18	6-row and larger (quantity in number of rows)	6				
35233 22	Mounted planters (total rows mounted)	6	34,667	99,261	27,279	79,678
35233 24	Grain drills (fixed frame) all types	14	6,341	53,963	5,113	40,755
35233 40	Transplanters (pull type or mounted) and broadcast seeders (endgate, mounted and drawn)	11	31,385	5,919	26,890	r5,810
	Fertilizer distributors, pull type or mounted:					
	Dry, including lime spreaders:					
35233 50	Gravity distribution, 5 feet and over	12	1,540	1,571	1,977	1,660
	Centrifugal distribution:					
35233 55	Pull type	14	2,322	9,244	2,146	r10,399
35233 56	Mounted	17	11,912	10,483	r7,223	r6,183
35233 58	Liquid	10	3,317	7,329	2,031	7,873
35233 59	Anhydrous ammonia	7	973	3,838	933	3,610
35233 61	Manure spreaders, conveyor type	14	10,361	42,645	9,379	35,803
35233 65	Manure spreaders, tank type, open and closed	9	2,558	17,326	2,436	r14,109
35233 69	Manure pumps, liquid	10	581	2,282	812	2,587
	Front and rear tractor mounted loaders (farm type), manure and general utility (except beet and sugar cane loaders):					
35233 71	Front-end mounted	13	14,344	31,720	14,388	28,834
35233 72	Rear-end mounted	2				
35233 77	Row crop unit planters (quantity in rows)	9	19,716	11,240	9,788	5,759
35233 79	Other planting, seeding, and fertilizing machinery	36	246,018	51,654	a151,661	37,945
35233 84	Attachments for planting, seeding, and fertilizing machinery	29	(X)	21,187	(X)	22,307
35239 71	Parts for planting, seeding, and fertilizing machinery, replacement units, only	76	(X)	114,660	(X)	r87,307
35235 --	Harvesting machinery	72	(X)	1,150,926	(X)	1,017,159
	Combines (harvester-threshers), grain types only:					
35235 13	Self-propelled	7	7,573	557,729	9,484	630,570
35235 15	Pull type	2				
35235 21	Small grain header for combines, all sizes	6	14,506	134,874	13,713	119,289
35235 31	Corn heads, all sizes	6				
35235 32	Windrowers or swathers, pull type for grain	2	34	940	r39	r1,048
35235 42	Corn pickers	2				
35235 53	Potato harvesters	5	289	8,859	260	6,575
35235 56	Beet harvesters, all row sizes	2				
35235 57	Peanut diggers, shakers, and windrowers	4	1,422	11,911	1,031	8,028
35235 59	Peanut combines	3				
	Field forage harvesters:					
35235 63	Shear bar, self-propelled type and pull type (basic machines)	7	3,508	75,220	2,209	53,995
	Attachments for shear bar type forage harvester:					
35235 64	Pickup hay unit and cutter bar hay unit	7	(X)	4,372	(X)	4,920
35235 65	Row crop unit, all sizes	6	(X)	(D)	(X)	(D)
35235 70	Flail type (horizontal knives or vertical free-swinging knives or hammers), including discharge spouts	4	(D)	(D)	(D)	(D)

See footnotes at end of table.

Table 3. MANUFACTURERS' SHIPMENTS OF FARM MACHINERY AND LAWN AND GARDEN EQUIPMENT, BY TYPE: 1988 AND 1987--Continued

(Quantity in units; value in thousands of dollars)

Product code	Product description	Number of companies	1988		1987	
			Quantity	Value	Quantity	Value
	Harvesting machinery--Continued					
35235 78	Cotton strippers and pickers (all types)	2				
35235 79	Other harvesting machinery, including potato diggers, cane harvesting equipment, picker-shellers, and field shelling attachments for corn pickers	39	4,325	262,809	2,978	128,276
35235 83	Attachments for harvesting machinery (including platform and seeder, reel, straw spreaders, load levelers, weed stripper, grate unit, knife grinders, and stalk walkers)	32	(X)	84,616	(X)	56,833
35239 50	Parts for harvesting machinery, replacement units only	59	(X)	319,327	(X)	265,156
35236 --	Haying machinery	42	(X)	460,392	(X)	r326,029
35236 13	Mowers, cutter bar type	5	3,204	6,571	2,302	5,758
	Mower-conditioners and windrowers with conditioner auger and draper type:					
35236 19	Pull type, cutter bar	6	13,821	105,147	11,039	r83,600
35236 20	Pull type, drum and disk	3				
35236 21	Self-propelled	4	2,035	45,319	699	16,676
35236 31	Rakes, side delivery, cylinder type and finger wheel type	11	7,127	18,383	4,230	9,770
	Hay balers:					
35236 53	Under 200 lb. (90 kgs.) bales	6	25,974	238,091	18,002	165,372
35236 57	Over 200 lb. (90 kgs.) bales	8				
35236 59	Hay stackers	3				
35236 64	Bale throwing attachments for hay balers	3	3,605	10,349	2,233	14,242
35236 65	Hay bale loaders, field type	8	1,338	867	1,513	1,440
36236 82	Other haying machinery	26	21,507	14,256	14,040	13,003
35236 83	Other attachments for haying machinery (stripper, bale chute, and knife attachments)	8	(X)	21,409	(X)	16,168
35239 55	Parts for haying machinery, replacement units only	25	(X)	115,863	(X)	r107,642
3523C --	Plows, harrows, rollers, pulverizers, cultivators, and weebers	(NA)	(X)	312,532	(X)	199,471
3523C pt.	Plows (primary tillage equipment)	69	(X)	92,201	(X)	57,783
	Moldboard plows:					
3523C 01	Pull type, 1-way	4	760	2,535	r683	708
3523C 03	Mounted, 1-way	4				
	Semimounted, 1-way:					
3523C 05	3-bottom and 4-bottom	3				
3523C 07	5-bottom	3				
3523C 09	6-bottom and 7-bottom	2	703	5,807	184	1,503
3523C 11	8-bottom and larger	1				
3523C 13	Pull type and mounted, 2-way: 1-, 2-, 3-bottom and larger	3				
3523C 15	Subsoilers, deep tillage	23	2,044	6,696	1,202	3,501
3523C 17	Terracing and ditching plows	9	1,703	1,619	275	576
	Chisel plows, deep tillage (chisel or sweep type):					
3523C 19	Pull type	17	3,193	22,608	1,924	12,617
3523C 21	Mounted	18	1,786	8,437	1,720	5,557
3523C 23	Disc-chisel combination	11	2,507	22,798	1,933	14,432
3523C 25	Other plows, except snow plows	3				
3523C 27	Middlebusters and disc bedders	13	1,658	2,212	1,503	745
3523C 29	Attachments for plows (coulters, jointers, root cutters, subsoilers, fertilizer distributors, etc.), excluding lister planting attachments	24	(X)	8,500	(X)	5,377
3523C 31	Plowshares (quantity in thousands of pounds)	10	(X)	10,989	(X)	12,767
35239 60	Parts for plows except plowshares, replacement units only	27	(X)	22,523	(X)	16,860
3523C pt.	Harrows, rollers, pulverizers and similar equipment (secondary tillage)	86	(X)	114,907	(X)	78,939
3523C 41	Spike-tooth harrow sections and spring-tooth and tine-tooth harrow sections	27	23,431	8,672	17,052	8,914
3523C 43	Power harrows	1				
	Disc harrows:					
3523C 45	Single (2-gang)	7	2,217	617	1,378	r691
	Tandem:					
3523C 47	Pull type	17	6,938	30,854	4,246	17,002
3523C 49	Mounted	10	4,300	2,437	4,991	2,668
3523C 51	Offset, all	15	941	8,042	r788	r6,850
3523C 53	Combination tillage equipment, roller/harrows, disc or coulter/field cultivators, disc or coulter/spring tooth	19	4,814	31,562	2,874	11,703
	Blade terracers or scrapers, farm size:					
3523C 55	Rear mounted blade type	24	32,328	8,791	45,165	9,228
3523C 57	Other, including wheel type	10	2,218	2,926	r3,719	r3,143
3523C 59	Land levelers	11	b2,186	b1,175	2,061	r1,164
3523C 61	Other harrows, rollers, pulverizers, and similar equipment	29	7,558	15,645	7,715	13,971
3523C 63	Attachments for harrows, rollers, pulverizers, and similar equipment	15	(X)	4,186	(X)	3,605
35239 65	Parts for harrows, rollers, pulverizers, and similar equipment, replacement units only	37	(X)	18,231	(X)	20,979

See footnotes at end of table.

Table 3. MANUFACTURERS' SHIPMENTS OF FARM MACHINERY AND LAWN AND GARDEN EQUIPMENT, BY TYPE: 1988 AND 1987--Continued

(Quantity in units; value in thousands of dollars)

Product code	Product description	Number of companies	1988		1987	
			Quantity	Value	Quantity	Value
3523C pt.	Cultivators and weeders	64	(X)	105,424	(X)	r62,749
	Corn and cotton type cultivators, shank and sweep type:					
3523C 71	Front mounted	1	1,587	827	1,270	454
	Rear mounted:					
3523C 73	Under 4-row	8				
3523C 75	4-row and 5-row	19	1,421	3,213	1,013	1,926
3523C 77	6-row and 7-row	19	3,254	8,745	2,026	4,354
3523C 79	8-row and larger	19	4,057	16,073	2,411	7,264
	Rotary cultivators:					
	Ground driven:					
3523C 81	Rotary hoe sections	-	1,511	4,604	860	2,880
3523C 83	Rotary hoe machines	6				
	Integrally mounted, 3-point hitch type:					
3523C 85	Under 4-row	1	241	1,193	211	644
3523C 87	4-row and 5-row	1				
3523C 89	6-row and 7-row	1				
3523C 90	8-row and larger	1				
3523C 91	Power driven	4				
	Field cultivators:					
	Pull type:					
3523C 92	Folding type	12	4,207	33,575	2,896	r15,667
3523C 93	Nonfolding type	6	(X)	11,841	(X)	r10,057
3523C 95	Mounted	7				
3523C 96	Tool bars, basic units only, pull type and mounted	14	1,579	1,775	r3,298	r3,017
3523C 97	Other cultivators and weeders	18	5,332	6,068	10,999	r7,505
3523C 98	Attachments for cultivators and weeders (front mounting frame, disc weeders, rear section, and drawbars)	25	(X)	17,510	(X)	r8,981
35239 65	Parts for cultivators and weeders, replacement units only	36	(X)	47,105	(X)	r41,870
3523E --	All other farm machinery and equipment, except parts	(NA)	(X)	2,390,699	(X)	938,448
3523E pt.	Stalk shredders and cutters or rotary mowers (PTO)	36	(X)	133,568	(X)	r131,557
	Flail type, without spout:					
3523E 01	Under 90-inch cutting width	3	3,325	10,577	2,913	8,418
3523E 03	90-inch cutting width and over	8				
	Horizontal blade type:					
3523E 05	66 inches cutting width and under	25	80,169	37,621	96,599	r48,387
3523E 07	Over 66 inches up to 100 inches cutting width	18	28,622	34,481	27,924	28,328
3523E 09	Over 100 inches cutting width	11	19,385	70,889	15,093	r46,424
35239 85	Parts for stalk shredders, and cutters or rotary mowers (PTO), replacement units only	22	(X)	32,697	(X)	r29,905
3523E pt.	Machines for preparing crops for market or for use	76	(X)	166,299	(X)	179,694
	Feed grinders and crushers, power:					
3523E 11	Hammer mills, with hammers only, farm size	14	702	7,166	647	4,931
3523E 12	Burr mills, with grinding plates only, combination roughage mills, and roller mills, farm size	11	1,567	7,330	1,890	7,715
3523E 13	Feed mixers, farm size, stationary and portable	21	2,578	25,981	1,983	16,872
	Combination grinder-mixers:					
3523E 14	Stationary	4	332	1,371	470	1,523
3523E 15	Portable	7	3,879	29,181	2,936	19,885
3523E 16	Tobacco curers	2	(D)	(D)	(D)	(D)
	Dryers (grain, hay, and seed):					
	Heated air crop dryers:					
	Batch type:					
3523E 17	Power take-off operated	2	(D)	(D)	(D)	(D)
3523E 18	Electric motor operated	4	1,780	14,580	2,999	17,812
3523E 19	Continuous flow type	11				
3523E 20	Heated air units	13	2,005	2,566	3,588	4,801
	Crop drying fans (over 15,000 c.f.m. at approximately 1-inch pressure):					
3523E 21	24 inches and under diameter	10	6,129	2,553	14,230	6,588
3523E 22	Over 24 inches diameter	13	2,322	2,241	3,921	3,886
3523E 23	Other machines for preparing crops for market or for use	47	48,423	61,120	88,316	78,550
3523E 24	Attachments for machines for preparing crops for market or for use	14	(X)	8,146	(X)	10,240
35239 70	Parts for machines for preparing crops for market or for use, replacement units only	54	(X)	25,739	(X)	28,495
3523E pt.	Farm poultry equipment	45	(X)	113,706	(X)	105,603
	Incubators, quantity represents egg capacity in thousands:					
3523E 31	Chicken egg incubators	8	344,994	13,598	356,009	17,418
3523E 32	All other incubators for all types of eggs except chicken, including turkey	4				

See footnotes at end of table.

Table 3. MANUFACTURERS' SHIPMENTS OF FARM MACHINERY AND LAWN AND GARDEN EQUIPMENT, BY TYPE: 1988 AND 1987--Continued

(Quantity in units; value in thousands of dollars)

Product code	Product description	Number of companies	1988		1987	
			Quantity	Value	Quantity	Value
	Farm poultry equipment--Continued					
	Brooders, floor and hanging:					
3523E 33	Gas, 5,000 Btu or more open flame, infrared and catalytic	7				
3523E 34	Other (electric, oil, coal, wood)	4	74,391	4,924	99,735	6,316
3523E 35	Brooders, battery (starting and growing), quantity in number of decks	3				
	Nests and cages:					
3523E 36	Hole and colony type, total linear footage	7	563,874	3,457	877,972	3,493
3523E 37	Standard laying cages, total linear footage	-	-	-	-	-
3523E 38	Laying cages mechanized for feeding and/or egg gathering, total linear footage	2	(D)	(D)	(D)	(D)
	Poultry feeders, except turkey feeders:					
3523E 39	Trough, except mechanical, total linear footage	9				
3523E 40	Hanging	6	(NA)	25,577	(NA)	16,719
	Mechanical, total linear footage of conveyor:	6				
3523E 41	Floor type	2	(NA)	(D)	(NA)	(D)
3523E 42	Cage type					
	Poultry waterers, except turkey waterers:					
3523E 43	Trough (chicken type) and automatic fountains	12	733,086	6,016	937,420	4,477
3523E 44	All other waterers	12	1,690,663	9,201	2,632,681	2,734
3523E 45	Turkey waterers	4	27,060	1,066	32,756	1,344
3523E 46	Egg washers	3	-	-	-	-
3523E 47	Egg graders, mechanized	-	-	-	-	-
3523E 48	Other farm poultry equipment	21	(NA)	9,757	(NA)	14,052
3523E 49	Attachments for farm poultry equipment	14	(X)	14,247	(X)	15,351
35239 75	Parts for farm poultry equipment, replacement units only	19	(X)	9,271	(X)	11,160
3523E pt.	Hog equipment	51	(X)	81,541	(X)	61,878
	Feeding equipment:					
3523E 51	Wet or dry power units	4	1,298	366	1,362	378
3523E 52	Pig feeders, under 100 lbs. live weight	24	133,566	4,003	168,859	4,156
	Hog feeders, over 100 lbs. live weight:					
3523E 53	4 or less feed openings, except rotary	14	26,779	2,388	19,036	2,301
3523E 54	Over 4 feed openings, except rotary	18	68,120	18,579	66,083	16,844
3523E 55	All rotary feeders, no doors or trough dividers	6	17,269	2,864	21,142	3,224
	Handling equipment:					
3523E 56	Hog farrowing crate and stall	19	54,745	8,636	70,338	r8,332
3523E 57	Hog pens, quantity in number of feet	12	373,192	2,932	362,013	2,220
	Watering equipment:					
3523E 58	Hog waterer, heated, pressure type	14	37,148	4,995	32,150	3,874
3523E 59	Hog waterer, not heated, pressure and gravity type	19	651,892	3,124	567,293	3,143
3523E 60	Gravity storage hog waterers (movable), 20 gallons or more capacity	9	16,068	1,952	15,367	1,885
3523E 61	Other hog equipment	30	410,119	24,342	198,089	11,349
3523E 62	Attachments for hog equipment	15	(X)	7,360	(X)	4,172
35239 88	Parts for hog equipment, replacement units only	13	(X)	4,054	(X)	4,537
3523E pt.	Other barn and barnyard equipment	101	(X)	153,255	(X)	r145,054
	Silo and grain bin unloaders, forage and grain including sealed storage unloaders (farm type):					
3523E 65	Top discharge	14				
3523E 66	Bottom discharge with chain conveyor	3	11,286	32,892	7,273	30,785
3523E 67	Bottom discharge with auger conveyor	7				
	Cattle and dairy barn equipment:					
	Feeding equipment:					
3523E 68	Electric powered bunk feeders	12	3,781	7,534	r4,556	r9,758
3523E 69	Calf feeder-hopper type	14	4,041	1,106	3,462	873
3523E 70	Cattle feeder-hopper type	18	27,713	3,660	12,760	2,663
3523E 71	Liquid feeder tanks, self-feeder type	6	(D)	(D)	(D)	(D)
	Handling equipment:					
3523E 72	Dairy, barn, gutter cleaners	10	1,784	15,525	r2,020	15,651
3523E 73	Dairy cattle stall for use with stanchions	9	3,903	417	6,922	519
3523E 74	Chain tie stalls, all types	12	17,715	842	21,190	986
3523E 75	Dairy free stalls, new (for loose housing barns)	10	15,871	645	21,364	804
3523E 76	Pens, quantity in number of feet	14	1,249,253	7,367	1,161,877	6,875
3523E 77	Milking parlor stalls (tandem, abreast-type)	7	4,693	2,013	4,806	1,929
3523E 78	Stanchions, swing type, shipped separately and with stalls	11	36,873	1,180	38,124	1,092
	Water equipment:					
3523E 79	Combination cattle and hog waterer, heated, pressure type	11	10,681	1,622	11,233	1,596
3523E 80	Cattle waterer, heated, pressure type	10	27,049	6,200	25,222	4,330
3523E 81	Dairy cattle water bowls, inside	12	137,299	2,551	266,416	2,652
3523E 82	Stock watering tanks	15	365,754	14,613	206,506	12,972
3523E 83	Livestock water heaters	6	(D)	(D)	(D)	(D)
3523E 84	Windmill heads and windmill towers	3	(D)	(D)	(D)	(D)
3523E 85	Other barn and barnyard equipment	49	660,016	43,849	649,369	37,590
3523E 86	Attachments for barn and barnyard equipment	20	(X)	5,425	(X)	13,725
35239 80	Parts for barn and barnyard equipment, replacement units only	25	(X)	18,620	(X)	19,088

See footnotes at end of table.

Table 3. MANUFACTURERS' SHIPMENTS OF FARM MACHINERY AND LAWN AND GARDEN EQUIPMENT, BY TYPE: 1988 AND 1987--Continued

(Quantity in units; value in thousands of dollars)

Product code	Product description	Number of companies	1988		1987	
			Quantity	Value	Quantity	Value
3523E pt.	Farm wagons, and other farm transportation equipment	90	(X)	1,474,403	(X)	136,737
	Wagons (chassis only) and trailer gears, excluding motor trucks:					
	4-wheel:					
3523E 88	Under 4-ton capacity	4	30,262	54,587	29,011	36,173
3523E 89	4-ton capacity and over	36				
	Boxes and racks for mounting on wagons and trailer gears:					
3523E 90	Manual unloading or dump	12	15,177	15,219	15,365	14,118
3523E 91	Gravity unloading, grain type only	11	7,507	6,019	8,383	6,517
	Power unloading:					
3523E 92	Grain type, cannot handle forage	14	4,234	15,426	4,821	17,090
3523E 93	Forage type	10	4,958	18,274	4,920	16,105
3523E 94	Boxes with integral running gear, grain and forage types	13	[a]4,241	[a]25,900	2,646	16,691
3523E 95	Other farm transportation equipment	32	(X)	[1]1,334,540	6,732	21,721
3523E 96	Attachments for farm transportation equipment	16	(X)	4,438	(X)	8,322
35239 84	Parts for farm transportation equipment, replacement units only	40	(X)	9,363	(X)	7,895
3523E pt.	Irrigation systems	15	(X)	247,927	(X)	177,925
3523E 98	Self-propelled irrigation systems, center-pivot, quantity is in ten-tower equivalents	11	7,334	179,599	5,827	117,225
3523E 99	All other systems using 100 feet flexible hose feeder line and over	14	7,902	68,328	6,746	60,700
35239 82	Parts for irrigation systems, replacement units only	11	(X)	50,468	(X)	37,764
	Operator cabs	7	(D)	(D)	3,499	4,585
	Operator cabs (metal) for farm equipment, shipped separately:					
35239 90	Farm tractors	6	(D)	(D)	3,499	4,585
35239 95	All other including windrowers, combines, power sprayers, etc.	2				
3523F --	Commercial turf and grounds care equipment, including parts and attachments	(NA)	(X)	593,036	(X)	r514,586
3523F pt.	Commercial turf and grounds mowing equipment	34	(X)	476,798	(X)	r416,240
3523F 01	Powered nonriding mowers	13	52,359	57,322	r55,169	r53,483
3523F 03	Riding reel type turf mowers, except greens mowers	5	11,176	86,887	r12,953	r82,727
3523F 05	Greens mowers, all types	4				
3523F 07	Riding rotary turf mowers	18	32,596	160,966	31,458	141,644
3523F 09	Gang rotary cutting units, reel and rotary, individual sections	7	37,957	42,460	35,913	39,539
3523F 11	Flail mower cutting units, including gang	7	3,327	9,450	3,302	7,038
3523F 13	Other mowing equipment	5	5,290	5,750	6,446	6,684
3523F 15	Parts and attachments for commercial turf and grounds mowing equipment	30	(X)	113,963	(X)	85,125
3523F pt.	Other commercial turf and grounds care equipment	38	(X)	116,238	(X)	r98,346
3523F 21	Turf tractors	3				
3523F 23	Sod cutters and sod harvesters	4	[4]10,746	[4]23,697	[4] r6,578	[4] r15,179
3523F 25	Seeders, spreaders, and top dresser attachments	8				
3523F 27	Aerators, spikers, and pluggers	10	9,920	21,356	r8,773	r22,340
3523F 29	Dethatchers	10	10,214	6,196	5,125	2,868
3523F 31	Power brooms, blowers, vacuums, and sweepers	11	14,323	16,228	10,285	13,554
3523F 33	Irrigation systems, except agricultural and residential	3	(4)	(4)	(4)	(4)
3523F 35	Turf trucks	5	7,166	26,426	r9,046	r27,020
3523F 37	Other commercial turf and grounds care equipment	17				
3523F 39	Parts and accessories for other commercial turf and ground care equipment	20	(X)	22,335	(X)	r17,385
3524	Lawn and garden equipment	(NA)	(X)	4,004,436	(X)	3,978,949
35241	Consumer nonriding lawn, garden, and snow equipment	67	16,120,314	1,787,976	16,664,974	1,716,821
	Lawnmowers:					
35241 01	Reel, push type; nonpowered	3	37,554	16,214	30,995	9,333
35241 02	Reel, push type; gas powered	5				
35241 11	Rotary, push type, gas powered	25	3,860,063	526,912	3,993,400	526,216
35241 12	Rotary, self-propelled, gas powered	24	1,977,381	425,179	1,807,602	r419,507
35241 15	Electric, all types, including battery powered	5				
35241 20	Rotary garden motor tillers	23	336,005	139,512	318,785	135,318
35241 30	2-wheel tractors walking type, except rotary tillers	3				
	Snow throwers (snow blower), except attachment type:					
35241 41	Single stage	12	205,644	53,990	r258,291	r76,084
35241 42	Dual stage	12	192,998	111,108	212,582	101,279
	Powered lawn edgers/trimmers:					
	Fixed blade:					
35241 51	Gasoline engine	14	587,540	48,062	529,613	45,222
35241 52	Other, including electric	5				
	Other than fixed blades:					
35241 54	Gasoline engine	7	2,322,493	174,157	r1,934,051	r149,147
35241 55	Other, including electric	6	2,103,800	47,077	3,228,775	66,113

See footnotes at end of table.

Table 3. MANUFACTURERS' SHIPMENTS OF FARM MACHINERY AND LAWN AND GARDEN EQUIPMENT, BY TYPE: 1988 AND 1987--Continued

(Quantity in units; value in thousands of dollars)

Product code	Product description	Number of companies	1988 Quantity	1988 Value	1987 Quantity	1987 Value
	Consumer nonriding lawn, garden, and snow equipment--Continued					
35241 61	Shredders and shredder-grinders	8	72,330	26,425	59,565	19,567
35241 62	Powered hedge trimmers	3	(5)	(5)	(5)	(5)
35241 63	Yard vacuums and blowers	18	1,393,710	91,147	1,180,487	r77,527
35241 64	Lawn sweepers, push type and powered, except attachment type	4	44,821	6,022	52,403	5,935
35241 91	Other consumer nonriding lawn, garden, and snow equipment	14	52,985,975	5122,171	53,058,445	584,573
35244	Consumer riding lawn, garden, and snow equipment	28	1,270,112	1,551,914	1,331,126	1,586,636
	Lawn tractors and riding mowers, front engine:					
35244 03	Under 8.0 hp	2	26,348	23,092	27,650	20,337
35244 04	8.0 hp. to 9.9 hp	9				
35244 07	10.0 hp. and over	15	721,805	757,461	r781,152	r855,837
	Lawn tractors and riding mowers, rear engine:					
35244 08	Under 6.0 hp	3	38,422	24,884	40,847	23,788
35244 09	6.0 to 7.9 hp	5				
35244 10	8.0 to 9.9 hp	18	194,470	175,136	205,402	185,068
35244 11	10.0 hp. and over	17	136,508	148,778	153,696	173,467
	Garden tractors:					
35244 12	Under 10.0 hp	1	22,895	42,609	22,960	42,103
35244 13	10.0 hp. to 13.9 hp	9				
35244 15	14.0 hp. to 15.9 hp	9	14,489	36,587	7,710	15,603
35244 17	16.0 hp. to 19.9 hp	16	103,159	298,417	81,276	r225,112
35244 19	20.0 hp. and over	9	11,816	44,950	10,433	45,321
35244 31	Other consumer riding lawn, garden, and snow equipment	1				
35246 00	Parts and attachments for consumer lawn, garden, and snow equipment	55	(X)	665,546	(X)	676,492
	Nonriding:					
35246 03	Parts	48	(X)	116,948	(X)	99,955
35246 05	Attachments	25	(X)	107,053	(X)	r94,887
	Riding:					
	Parts:					
35246 11	For tractors and riding mowers	31	(X)	201,524	(X)	201,714
35246 13	For other equipment	10	(X)	8,502	(X)	18,453
	Attachments:					
35246 15	Rotary, mower decks	18	(X)	65,633	(X)	r86,411
35246 17	Rotary tiller attachments	15	(X)	10,285	(X)	r8,068
35246 19	Blades, dozer	14	(X)	12,242	(X)	r10,117
35246 21	Snow throwers	12	(X)	14,532	(X)	16,697
35246 23	Carts and wagons	7	(X)	4,628	(X)	3,450
35246 25	All other attachments	32	(X)	124,199	(X)	r136,740

Note: The percent of estimation of each item is indicated as follows (see "Description of Survey" for a discussion of estimation of missing reports: a10 to 25 percent of this item is estimated. b25 to 50 percent of this item is estimated.

- Represents zero. (D) Data withheld to avoid disclosing figures for individual companies. (NA) Not available. pt. Partial.
r Revised by 5 percent or more from previously published figures. (X) Not applicable.

1 For 1988 data for product class 35231, wheel tractors, is combined with product code 3523E 95, other farm transportation equipment, to avoid disclosing figures for individual companies.
2 Includes data for product class 35231, wheel tractors.
3 Quantity in thousands of units.
4 Data for product codes 3523F 21, 3523F 23, 3523F 25, and 3523F 33 are combined to avoid disclosing figures for individual companies.
5 Data for product code 35241 62 is combined with product code 35241 91 to avoid disclosing figures for individual companies.

Table 4. COMPARISON OF VALUES OF SHIPMENTS OF FARM MACHINERY AND LAWN AND GARDEN EQUIPMENT, AS REPORTED IN THE MA35A, THE 1987 CENSUS OF MANUFACTURES, AND THE 1986 ANNUAL SURVEY OF MANUFACTURES

(Value in millions of dollars)

Product code	Product description	1987		1986		
					Annual Survey of Manufactures	
		MA35A	Census of Manufactures[P]	MA35A	Value	Standard error of estimate[1]
3523	Farm machinery and equipment	(X)	6,390.2	(X)	6,131.0	2
35231	Wheel tractors and attachments[2]	745.8	751.2	759.6	776.0	2
35232	Farm dairy machines, sprayers and dusters, elevators and blowers	278.9	263.9	287.7	306.8	11
35233	Planting, seeding, and fertilizing machinery	321.8	315.2	296.0	315.1	8
35235	Harvesting machinery	1,017.2	1,014.8	980.0	967.4	3
35236	Haying machinery	326.0	326.7	286.4	297.8	2
3523C	Plows, harrows, rollers, pulverizers, and cultivators and weeders	199.5	189.6	220.6	217.8	(NA)
3523E	All other farm machinery and equipment	938.4	912.1	772.3	805.6	4
35239	Parts for farm machinery and equipment, for sale separately	(NA)	1,287.2	(NA)	1,401.4	3
35239 pt.	Parts for wheel tractors	212.8	212.8	831.6	(NA)	(NA)
35239 pt.	Parts for other farm machinery and equipment	(NA)	1,028.2	(NA)	(NA)	(NA)
35239 pt.	Operator cabs for farm equipment[3]	4.6	4.5	(NA)	(NA)	(NA)
3523F	Commercial turf and grounds care equipment, including mowing equipment, parts and attachments	514.6	511.9	65.4	66.3	5
35230 00	Farm machinery and equipment n.s.k., typically for establishments with 20 employees or more	(4)	344.0	(4)	618.3	4
35230 02	Farm machinery and equipment n.s.k., typically for establishments with less than 20 employees		473.4			
3524	Lawn and garden equipment	3,979.9	4,036.6	3,443.5	3,455.7	1
35241	Consumer nonriding lawn, garden, and snow equipment	1,716.8	1,697.7	1,581.4	1,556.4	2
35244	Consumer riding lawn, garden, and snow equipment	1,586.6	1,545.9	1,255.4	1,270.2	1
35246	Parts and attachments for consumer lawn, garden and snow equipment	676.5	698.5	387.2	367.2	2
35240 00	Lawn and garden equipment n.s.k., typically for establishments with 20 employees or more	(4)	23.6	(4)	88.0	3
35240 02	Lawn and garden equipment n.s.k., typically for establishments with less than 20 employees		69.0			

Note: Effective with 1979 annual reports (annual summaries for monthly and quarterly series) most Current Industrial Reports are being benchmarked to the 1987 Census of Manufactures. However, this was not possible for CIR MA35A since it excludes parts sold to plants producing farm equipment (original equipment). The lawn and garden industry 3524 was added to the survey in 1979. It is not possible to determine what portion of those products not specified by kind in the census (product codes 35230 00 and 35230 02) are covered by the survey.

In the 1987 Census of Manufactures, shipments data for establishments of small companies, typically those with fewer than five employees, were estimated from administrative records data rather than collected on census questionnaires. These shipments are included in product code 35230 02. Products not adequately identified by detail product were coded in some cases to the appropriate industry (four-digits) followed by "000."

Product class totals in this table do not agree with comparable values in tables 1, 2, and 3. This results from the fact that the values in tables 1, 2, and 3 include the value of parts in the comparable product class total. In this table, all industry 3523 parts are collected in product class 35239.

CIR MA35A does not include part of product class 35239, parts for farm machinery and equipment sold to plants producing farm machinery. Also, product class 3523F was not included prior to 1979.

(NA) Not available. N.s.k. Not specified by kind. [P]Preliminary. pt. Part. (X) Not applicable.

[1]The annual survey of manufactures percentage standard errors shown are the approximate relative errors of the estimates of level. A more detailed description of the standard error of estimate is given in the introduction of the annual survey of manufactures, Value of Product Shipments, MB6(AS)-2, under "Qualifications of the Data."

[2]Data for wheel tractors and attachments for 1984 and earlier years were collected monthly on Current Industrial Reports Series M35S, Tractors (Except Garden Tractors).

[3]Data collected in the 1987 Census of Manufactures include operator cabs whether shipped to original equipment manufacturers or to others. The MA35A excludes products shipped to original equipment manufacturers.

[4]Available only from the annual survey of manufactures and census of manufactures. Most of these data are derived from administrative records.

Table 5. SHIPMENTS, EXPORTS, AND IMPORTS OF FARM MACHINERY AND EQUIPMENT: 1988

(Quantity in units; value in thousands of dollars)

Product description	Manufacturers' shipments		Exports of domestic merchandise[1]					Imports for consumption[3]		Apparent consumption[4]		Percent imports to apparent consumption	
				Value		Percent exports to manufacturers' shipments							
	Quantity	Value	Quantity	Value	Estimated producers' value[2]	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Wheel tractors, farm type (PTO)	(D)	(D)	7,097	243,568	178,511	(NA)	(NA)	90,512	941,054	(NA)	(NA)	(NA)	(NA)
Planting seeding, and fertilizing machinery, and attachments	(X)	380,614	10,857	29,528	21,641	(X)	6	44,900	28,604	(X)	387,577	(X)	7
Plows, listers, harrows, rollers, pulverizers, stalk cutters, and attachments:													
Harrows, rollers, pulverizers, stalk cutters, and soil pulverizers	(X)	268,475	10,102	12,794	9,377	(X)	3	33,147	27,200	(X)	286,298	(X)	10
Moldboard plows	1,463	8,342	1,172	4,319	3,165	77	38	2,482	8,500	(X)	84,595	(X)	10
Disc plows	(X)	83,859	597	1,511	1,107	(X)	9						
Other plows and listers, and attachments			4,639	9,083	6,657								
Harvesting machinery and attachments:													
Combines, all types, all sizes	7,573	557,729	2,977	105,884	77,602	39	14	8,624	56,931	(X)	1,061,155	(X)	5
Field forage harvesters	(X)	89,188	1,878	30,354	22,246	(X)	25						
Other harvesting machinery and attachments	(X)	504,009	3,915	63,930	46,854	(X)	9						
Haying machinery:													
Mowers, except lawn mowers	19,060	157,037	19,051	21,286	15,601	99	10	36,236	48,419	36,245	189,855	99	26
Hay balers	25,974	238,091	9,033	54,993	40,304	35	17	8,217	11,090	(X)	260,250	(X)	4
Other haying machinery and attachments	(X)	65,264	3,460	18,954	13,891	(X)	21						
Farm dairy machines, sprayers and dusters, farm elevators and weeders, and attachments:													
Farm dairy machines and equipment and attachments	(X)	79,997	(X)	9,957	7,297	(X)	9	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
Sprayers and dusters and attachments	(X)	209,911	158,345	30,450	22,317	(X)	11	(X)	15,774	(X)	203,368	(X)	8
Farm elevators and blowers and attachments	(X)	58,851	1,866	5,326	3,903	(X)	7	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
Cultivators and weeders and attachments	(X)	105,424	7,779	11,233	8,233	(X)	8	73,353	39,070	(X)	136,261	(X)	29
Poultry incubators	44,994	13,598	5,464	9,269	6,793	12	50	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
Other poultry keeping machines and attachments	(X)	100,108	(X)	27,318	20,021	(X)	20	(NA)	(NA)	(X)	(NA)	(X)	(NA)
Farm wagons and carts	(X)	(NA)	1,863	4,489	3,290	(X)	(S)	4,839	6,852	(X)	5,425	(X)	(S)
Barn and barnyard machines	(X)	153,255	13,436	10,052	7,367	(X)	5	(NA)	(NA)	(X)	(NA)	(X)	(NA)
Machines for preparing crops for market or for use and attachments	(X)	166,299	1,663	9,898	7,254	(X)	4	(NA)	(NA)	(X)	(NA)	(NA)	(NA)
Self-propelled irrigation systems:													
Center pivot	7,334	179,599	(X)	127,478	93,429	(X)	52	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
All other systems	7,902	68,328	(X)	52,916	38,782	(X)	57	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
Lawn mowers:													
Riding mowers	1,117,753	1,129,351	117,884	135,189	99,080	11	9	4,383	10,750	1,004,252	1,041,021	1	1
Nonriding mowers:													
Rotary type	(D)	(D)	155,800	35,304	25,874	(NA)	(NA)	24,716	8,286	(NA)	(NA)	(NA)	(NA)
Reel type:													
Gas powered	37,554	16,214	7,459	1,498	1,098	87	15	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
Nonpowered			25,038	1,902	1,394			(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
Greens mowers	(D)	(D)	7,582	19,664	14,412	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
Gang cutting units	37,957	42,460	3,404	6,309	4,624	9	11	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
Electrical mowers	(D)	(D)	27,506	4,326	3,171	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
Rotary garden motor tillers	(D)	(D)	11,706	5,140	3,767	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
Garden tractors	(D)	(D)	57,765	91,838	67,308	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)

See footnotes at end of table 6.

Table 6. SHIPMENTS, EXPORTS, AND IMPORTS OF FARM MACHINERY AND EQUIPMENT: 1987

(Quantity in units; value in thousands of dollars)

Product description	Manufacturers' shipments		Exports of domestic merchandise[1]					Imports for consumption[3]		Apparent consumption[4]		Percent imports to apparent consumption	
				Value		Percent exports to manufacturers' shipments							
	Quantity	Value	Quantity	Value	Estimated producers' value[2]	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Wheel tractors, farm type (PTO)	20,937	742,454	5,731	191,223	139,688	27	19	96,570	755,837	111,776	1,358,603	86	56
Planting seeding, and fertilizing machinery, and attachments	(X)	321,775	11,161	26,360	19,402	(X)	6	34,349	32,046	(X)	334,419	(X)	10
Plows, listers, harrows, rollers, pulverizers, stalk cutters, and attachments:													
Harrows, rollers, pulverizers, stalk cutters, and soil pulverizers	(X)	210,496	5,639	8,584	6,270	(X)	3	22,953	24,864	(X)	229,090	(X)	11
Moldboard plows	1,327	2,211	1,380	4,358	3,183	(S)	(S)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
Disc plows	(X)	55,572	675	1,806	1,319	(X)	13	5,524	11,405	(X)	60,018	(X)	19
Other plows and listers, and attachments			4,248	7,721	5,640								
Harvesting machinery and attachments:													
Combines, all types, all sizes	9,484	630,570	5,342	168,598	123,160	56	20	8,353	39,016	(X)	908,579	(X)	4
Field forage harvesters	(X)	66,540	1,046	22,654	16,548	(X)	25						
Other harvesting machinery and attachments	(X)	320,049	3,597	38,177	27,688	(X)	9						
Haying machinery:													
Mowers, except lawn mowers	14,040	106,034	13,766	15,388	11,240	98	11	21,673	34,961	21,947	129,755	99	27
Hay balers	18,002	165,372	5,429	41,399	30,241	30	18	7,750	8,840	(X)	185,698	(X)	5
Other haying machinery and attachments	(X)	54,623	2,439	17,654	12,896	(X)	25						
Farm dairy machines, sprayers and dusters, farm elevators and weeders, and attachments:													
Farm dairy machines and equipment and attachments	(X)	56,137	(X)	5,248	3,833	(X)	7	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
Sprayers and dusters and attachments	(X)	158,337	103,490	28,355	20,713	(X)	13	(X)	12,003	(X)	159,627	(X)	8
Farm elevators and blowers and attachments	(X)	64,377	1,498	3,794	2,771	(X)	4	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
Cultivators and weeders and attachments	(X)	62,749	4,677	7,054	5,152	(X)	8	63,886	34,708	(X)	92,305	(X)	38
Poultry incubators	56,809	17,418	8,401	8,214	6,014	15	35	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
Other poultry keeping machines and attachments	(X)	88,185	(X)	21,753	15,890	(X)	18	(NA)	(NA)	(X)	(NA)	(X)	(NA)
Farm wagons and carts	(X)	136,737	1,195	2,023	1,477	(X)	1	3,636	4,024	(X)	139,284	(X)	3
Barn and barnyard machines	(X)	145,054	6,798	6,783	4,954	(X)	3	(NA)	(NA)	(X)	(NA)	(X)	(NA)
Machines for preparing crops for market or for use and attachments	(X)	179,694	1,844	10,117	7,390	(X)	4	(NA)	(NA)	(X)	(NA)	(NA)	(NA)
Self-propelled irrigation systems:													
Center pivot	5,627	117,225	(X)	94,950	69,360	(X)	59	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
All other systems	6,746	40,700	(X)	42,142	30,784	(X)	51	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
Lawn mowers:													
Riding mowers	1,208,747	1,258,497	62,627	70,704	51,649	5	4	25,085	39,958	1,171,205	1,246,806	2	3
Nonriding mowers:													
Rotary type	(D)	(D)	70,639	17,828	13,023	(NA)	(NA)	67,108	13,620	(NA)	(NA)	(NA)	(NA)
Reel type:													
Gas powered	30,995	9,333	6,548	1,284	937	44	14	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
Nonpowered			7,014	529	386			(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
Greens mowers	(D)	(D)	3,892	11,178	8,165	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
Gang cutting units	35,913	39,539	3,936	5,206	3,802	11	10	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
Electrical mowers	(D)	(D)	14,817	2,747	2,006	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
Rotary garden motor tillers	(D)	(D)	8,798	4,076	2,977	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
Garden tractors	(D)	(D)	44,224	72,218	52,755	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)

Note: For comparison of Standard Industrial Classification-based product codes, Schedule B export numbers, and TSUSA import numbers, see table 7.

(D) Data withheld to avoid disclosing figures for individual companies. (NA) Not available. (PTO) Power take-off. (S) Suppressed. Data does not meet publication standards of the Bureau of the Census. (X) Not applicable.

[1] Source: Bureau of the Census report, EM 546, U.S. Exports.

[2] These values were derived by use of adjustment factors to exclude frei, insurance, and other charges incurred in moving goods to the port of export. This adjustment is made to convert the values to an approximation of the producers' value of export goods. Current adjustment factors are based on data for 1986 which are published in Exports From Manufacturing Establishments, AR86-1, appendix B. The adjustment factor for this report is 0.7329.

[3] Source: Bureau of the Census report IM 146, U.S. Imports for Consumption.

[4] Apparent consumption is derived by subtracting exports from the total of shipments plus imports.

Table 7. COMPARISON OF STANDARD INDUSTRIAL CLASSIFICATION-BASED PRODUCT CODES, SCHEDULE B EXPORT CODES, AND TSUSA IMPORT CODES: 1988

Product code	Product description	Export code[1]	Product description	Import code[2]	Product description
			Agricultural tractors, wheel type, new, PTO horsepower:		Tractors, wheel, except garden new, suit, for agricultural use:
		692.3315	Under 40		
		692.3320	40 but less than 60	692.3402	Under 20 hp
		692.3325	60 but less than 80	692.3404	20 hp under 30 hp
35231 01,03,05, 07,09,11,13, 15,31,33,35	Wheel tractors, farm type (PTO)	692.3330	80 but less than 100	692.3405	30 hp under 40 hp
		692.3335	100 but less than 120	692.3406	40 hp under 80 hp
		692.3340	120 but less than 140	692.3409	80 hp under 100 hp
		692.3345	140 but less than 160	692.3411	100 hp and over
		692.3350	160 but less than 180		
		692.3355	180 and over		
35233 16,18,22, 24,40,50,55,56, 58,59,61,65,69, 71,72,77,79,84	Planting, seeding, and fertilizing machinery, and attachments	666.0024	Planting machines	666.0025	Planting, seeding and fertilizing machines
		666.0026	Seeding machines (including drills)		
		666.0028	Fertilizing machines		
	Plows, listers, harrows, rollers, pulverizers, stalk cutters, and attachments:				
3523C 41,43,45, 47,49,51,53,55, 57,59,61,63	Harrows, rollers, pulverizers, stalk cutters, and soil pulverizers	666.0021	Harrows, tractor disc	666.0020	Harrows, rollers, stalk cutters and soil pulverizers
3523E 01,03,05, 07,09		666.0022	Rollers, stalk cutters, soil pulverizers and harrows, n.s.p.f.		
3523C 01,03,05, 07,09,11,13	Moldboard plows	666.0004	Moldboard plows		
3523C 15,17,19, 21,23,25,27,29, 31	Other plows and listers, and attachments	666.0006	Disc plows	666.0005	Plows and listers
		666.0007	Plows, n.s.p.f., including listers		
	Harvesting machinery and attachments:				
35235 13,15	Combines, all types, all sizes	666.0041	Combines, self-propelled		
		666.0042	Combines, n.s.p.f., except self-propelled		
35235 63,64,65, 70	Field forage harvesters	666.0043	Field forage harvesters	666.0040	Harvesting machines, n.s.p.f.
35235 21,31,32, 42,53,56,57 59,78,79,83	Other harvesting machinery and attachments	666.0044	Harvesting machines, n.s.p.f.		
35236 13,19,20, 21	Haying machinery: Mowers, except lawn mowers	666.0036	Mowers, cutter bar type tractor drawn or for mounting, except lawn mowers	666.0035	Mowers, except lawn mower
		666.0037	Mowers, rotary cutter type tractor drawn or for mounting, except lawn mowers		
		666.0038	Mowers, n.s.p.f. other than tractor drawn or for mounting, except lawn mowers		
35236 53,57	Hay balers	666.0031	Hay balers		
35236 31,59,64, 65,82,83	Other haying machinery and attachments	666.0034	Haying machines n.s.p.f. including hay rakes and tedders	666.0030	Haying machines other than mowers
	Farm dairy machines, sprayers and dusters, farm elevators, farm blowers, garden tractors, cultivators and weeders, and attachments:				
35232 03,04,08, 11,12,16	Farm dairy machines and equipment and attachments	666.0053	Farm dairy machinery, except cream separators	(NA)	
35232 19,20,22-29,31-39,41-43, 48,52,53-57	Sprayers and dusters and attachments	662.6035	Power sprayers and dusters	662.4500	Sprayers for agricultural or horticultural use excluding self-contained under 5 gallon capacity
		662.6046	Spraying appliances, except power operated		
35232 60,63-66, 73-75	Farm elevators and blowers and attachments	666.0056	Farm elevators, including blower-type	(NA)	
					Cultivators and weeders:
3523C 71,73,75, 77,79,81,83,85, 87,89,90-93, 95-98	Cultivators and weeders and attachments	666.0011	Cultivators, tractor drawn or for tractor mounting	666.0007	Machines: Walk behind rotary tillers
				666.0009	Other machines
		666.0012	Cultivators, n.s.p.f., including weeders	666.0012	Other cultivators and weeders
3523E 31,32	Poultry incubators	666.0047	Incubators, poultry	(NA)	
3523E 33-39, 40-49	Other poultry keeping machines and attachments	666.0049	Poultry keeping machines, n.s.p.f., including feeders, waterers, etc.	(NA)	
3523E 68-96	Farm wagons and carts	666.0045	Farm wagons and carts	666.0045	Farm wagons and carts
3523E 65-86	Barn and barnyard machines	666.0057	Barn/barnyard machines, n.s.p.f., including mechanized hog/cattle feeding and watering equipment	(NA)	

See footnotes at end of table.

Table 7. COMPARISON OF STANDARD INDUSTRIAL CLASSIFICATION-BASED PRODUCT CODES, SCHEDULE B EXPORT CODES, AND TSUSA IMPORT CODES: 1988--Continued

Product code	Product description	Export code[1]	Product description	Import code[2]	Product description
3523E 11-24	Machines for preparing crops for market or for use and attachments	666.0058	Machines, n.e.s.p.f., for preparing crops for market or for use	(NA)	
	Self-propelled irrigation systems:		Irrigation equipment, sprinkler or trickle type, for agricultural use:		
3523E 98	Center-pivot	662.6031	Self-propelled center-pivot	(NA)	
3523E 99	All other systems	662.6033	Other	(NA)	
			Lawnmowers:		
			Riding mowers:		
35244 03,04,07, 08,09,10,11	Consumer riding lawn tractors and riding mowers	666.1032	Reel type		Lawnmowers:
			Rotary type:		
		666.1042	Under 7 hp	666.1020	Riding lawnmowers
		666.1046	7 to 9.9 hp		
		666.1048	10 hp and over		
			Nonriding mowers:		
35241 11,12	Nonriding rotary lawnmowers		Rotary mowers, gasoline:		
		666.1056	Under 5 hp	666.1010	Nonriding, rotary lawnmowers
		666.1058	5 hp and over		
	Nonriding reel type lawnmowers:		Reel mowers:		
35241 02	Gas powered	666.1052	Gasoline powered --		
35241 01	Nonpowered	666.1054	Other than gasoline	666.1030	Other lawnmowers
3523F 05	Greens mowers	666.1014	Greens mowers (all types)	(NA)	
3523F 09	Gang cutting units	666.1018	Lawnmowers gang cutting units	(NA)	
35241 15	Electrical mowers	666.1022	Lawnmower, electric, including battery operated	(NA)	
35241 20	Rotary garden, motor tillers	666.0002	Motor tillers	(NA)	
35244 12,13, 15,17,19	Garden tractors	692.3210	Garden tractors, wheel type, new	(NA)	

(NA) Not available. N.e.s.p.f. Not specifically provided for. (PTO) Power take-off.

[1] Source: 1988 edition, Schedule B, Statistical Classification of Domestic and Foreign Commodities Exported from the United States.
[2] Source: Tariff Schedules of the United States Annotated (TSUSA), 1988.

DESCRIPTION OF SURVEY

Scope of Survey. This survey covers firms engaged in the manufacture of farm machinery and lawn and garden equipment. Very small firms (generally less than five employees) for which 1987 Census of Manufactures data were derived from administrative records of other government agencies are excluded.

Survey Methodology. The statistics in this publication were collected by mail on Bureau of the Census annual Form MA35A, Farm Machinery and Lawn and Garden Equipment. The survey panel includes all known producers of farm machinery and lawn and garden equipment, except the very small firms excluded from the scope of the survey. Almost 1,200 companies are included. No estimate is derived for the small firms excluded from the survey.

Reliability of Data. Survey error may result from several sources: (1) inability to obtain information about all cases in the survey; (2) response errors; (3) definitional difficulties; (4) differences in the interpretation of questions; (5) mistakes in recording or coding the data obtained; and (6) other errors of collection, response, coverage, and estimation for missing data. These nonsampling errors also occur in complete censuses. Although no direct measurement of the biases due to nonsampling errors has been obtained, precautionary steps were taken in all phases of the collection, processing, and tabulation of the data in an effort to minimize their influence.

A major source of bias in the published estimates is due to imputing data for nonrespondents, for late reporters, and for data which fail logic edits. Missing figures are imputed based on yearly movements shown by reporting firms. Imputation generally is limited to a maximum of 10 percent for any one data cell. Figures with imputation rates greater than 10 percent are footnoted.

The imputation rate is not an explicit indicator of the potential error in published figures due to nonresponse, because the actual yearly movements for nonrespondents may or may not closely agree with the imputed movements. The range of difference between the actual and imputed figures is not precisely known, but is assumed to be small. The degree of uncertainty regarding the accuracy of the published data increases as the percentage of imputation increases. Figures with imputation rates above 10 percent should be used with caution.

Revisions to Previous Period Data. Statistics for previous years may be revised as the result of corrected data from respondents, late reports for which imputations were made as described above, or other corrections. Figures which have been revised by more than 5 percent from previously published figures are indicated by footnotes.

Revisions include changes to prior period data resulting from reconciliation of the results of this survey with the 1987 Census of Manufactures to correct differences in reported data between the two series and to identify and verify new establishments included in the scope of this survey. Table 4 presents a comparison of data from the two series by census product class following the reconciliation.

Adjustment for Price Change. All dollar figures included in this publication are in current dollars; i.e., they have not been adjusted for price change.

EXPLANATION OF TERMS

Quantity and Value of Shipments. The figures on quantity and value of shipments represent physical shipments of all products sold, transferred to other establishments of the same company, or shipped on consignment, whether for domestic or export sale. The value represents the net sales price, f.o.b. plant, to the customer or branch to which the products are shipped, net of discounts, allowances, freight charges, and returns. Shipments to a company's own branches are assigned the same value as comparable sales to unaffiliated customers; i.e., the value includes an appropriate allocation of company overhead and profit. Products bought and resold without further manufacture are excluded.

Net Engine Horsepower. Net engine horsepower (NEHP) is defined as net fly wheel performance as measured by the manufacturer, with all standard accessories operated, and corrected to 29.38 inches Hg and temperature of 85°.

Lawn Tractors and Riding Mowers. A self-propelled riding vehicle, generally designed for cutting grass, which is not capable of pulling a plow.

Garden Tractors. A self-propelled riding vehicle designed for general purpose lawn and garden work, which is capable of pulling a plow. All attachments for garden tractors are removable.

Turf Tractors. A self-propelled riding vehicle, typified by a low center of gravity, equipped with wide turf-tread tires.

Parts for Farm Machinery and Equipment. Parts are manufactured components essential to the completeness and proper operation of a machine, vehicle, or apparatus. Parts data include only parts sold for replacement and repair. Parts sold to manufacturers for incorporation in their own products are excluded.

Attachments for Farm Machinery and Equipment. Attachments are supplementary devices designed to be attached to a vehicle or apparatus that either (1) vary or extend the function of the unit or (2) add to the convenience or effectiveness of the basic unit.

COMPARISON OF EXPORT, IMPORT, AND DOMESTIC OUTPUT DATA

The Standard Industrial Classification (SIC) system used for domestic output and the statistical export and import commodity classifications were developed independently. This results in considerable difficulty in comparing the three types of data for many commodity areas. The domestic output classification is based on type of industry; on the other hand, the export and import classification system is more materials oriented. Also, there are a substantial number of imported commodities which have no comparable domestic output classification. The relationships shown in this report should be considered only as approximations, since, in addition to the problems mentioned above, there are also the following problems affecting the comparability of the three sets of data.

Valuation. There are different methods of valuation for the three types of data:

- *Domestic Output.* Valued at the point of production. It includes the net sales price, f.o.b. plant, after discounts and allowances, exclusive of freight charges and excise taxes.
- *Exports.* Valued at the point of exportation. It includes the selling price, or cost if not sold, and inland freight, insurance and other charges to the export point.

  Estimated producers' values of exports have also been developed. These values more closely approximate the values reported for domestic output because they exclude freight, insurance, and other charges applied from the producing plant to the export point.
- *Imports.* Valued at the first port of entry in the United States. It includes c.i.f. (cost, insurance, and freight), duty, and other charges to the import point.

Duplication in Quantity and Value of Output. Because producers' shipments of some commodities may be used as materials for incorporation into other commodities, combinations of data for such commodities may contain a certain amount of duplication. Thus, percentages of exports to output or imports to apparent consumption (output plus imports minus exports) at fourdigit or broader levels may be understated. Where duplication is known to be substantial, the output data are appropriately noted in the table.

Low-Value Import and Export Transactions. Detailed commodity information is not included for individual export shipments valued at not more than $1,500. Generally, detailed commodity information is not included for individual import shipments valued at not more than $1,000. For textiles and textile products, gloves, footwear, and miscellaneous rubber and plastics products, detailed commodity information is not included for individual import shipments valued at not more than $250. This is believed to have only negligible effects on the statistics for the bulk of the commodities.

Manufacturers' Shipments, Not Specified by Kind. The value of manufacturers' shipments at the four-digit industry level often includes a small amount which is not distributed among the individual five-digit product classes. Export and import percentages at the more detailed levels might, therefore, be slightly overstated.

Time Lag Between Output and Exports. There will be a lag between the time a commodity is produced or shipped by the producer and the time it is actually exported, especially when intermediaries (wholesalers, exporters, etc.) are involved. Ordinarily, this type of discrepancy is insignificant in annual figures.

"Direct" vs "Total" Commodity Exports and Imports. Export and import data do not include materials which are incorporated into other more finished products and exported or imported in finished form. Thus, by showing only direct exports and imports, the relation of exports to output and imports to apparent consumption for intermediate products is considerably understated.

Used Commodities. With a few exceptions, used or rebuilt commodities are classified in the same import or export codes as is new merchandise. Percentages are thus overstated to the extent that used or rebuilt products are significant in trade.

Geographic Area of Coverage. Import and export data reflect the movement of merchandise into and out of U.S. foreign trade zones, the U.S. Virgin Islands, and the U.S. customs territory (includes the 50 States, the District of Columbia, and Puerto Rico).

HISTORICAL NOTE

Data on farm machinery and equipment have been collected by the Bureau of the Census since 1920; data on lawn and garden equipment since 1978. Historical data may be obtained from Current Industrial Reports (called Facts for Industry before 1959) available at your local Federal Depository Library. A list of these libraries may be obtained from the Bureau of the Census regional offices:

Office	Telephone
Atlanta, Georgia	(404) 347-2271
Boston, Massachusetts	(617) 223-2327
Charlotte, North Carolina	(704) 371-6142
Chicago, Illinois	(312) 353-6251
Dallas, Texas	(214) 767-0621

Denver, Colorado	(303) 236-2200
Detroit, Michigan	(313) 226-7742
Kansas City, Kansas	(816) 374-4601
Los Angeles, California	(213) 209-6616
New York, New York	(212) 264-3860
Philadelphia, Pennsylvania	(215) 597-4920
Seattle, Washington	(206) 442-7828

Historical data are also available on microfiche. For further information contact the Bureau of the Census, Data User Services Division, (301) 763-4100.

RELATED REPORTS

The Bureau of the Census publishes the following related reports:

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Current Industrial Reports		
MQ35D	Quarterly	*Construction Machinery*
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FT 546 FT 446	Monthly Annually	*U.S. Exports—Schedule B—Commodity by Country*
IM 146 FT 246	Monthly Annually	*U.S. Imports for Consumption—TSUSA—Commodity by Country*

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone Number
Current Industrial Report MA35A	Stephen Pope	(301) 763-5353
Manufacturers' Shipments, Inventories, and Orders	Ruth Runyan	(301) 763-2520
Classification Systems Comparability	Francis McCormick	(301) 763-1935
Foreign Trade	Trade Data Inquiries Staff (FTD)	(301) 763-5140
Census/ASM	Tom Lee	(301) 763-5752
International Trade Administration	Mary Wiening	(202) 377-4708
To order a Current Industrial Report	Superintendent of Documents (GPO)	(202) 783-3238
To subscribe to Census Bureau publication	Superintendent of Documents (GPO)	(202) 275-3054

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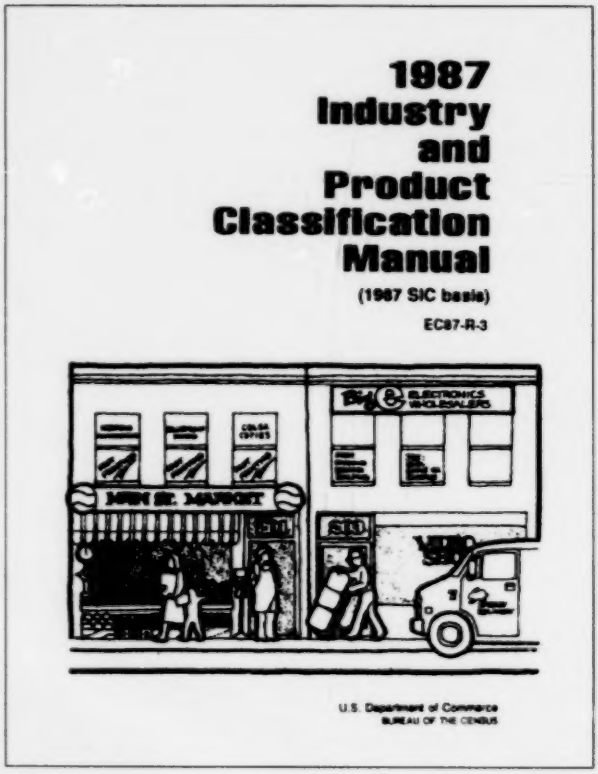

THE INDUSTRY AND PRODUCT CLASSIFICATION MANUAL, until this 1987 edition, was an internal Bureau of the Census reference document used primarily to assign SIC-based codes to industries and products for the economic censuses and current surveys. Because of data users' interest and many requests, the Census Bureau is making this publication available to the public.

This publication is widely used within the economic area of the Census Bureau to provide consistent assignment of industry codes. This publication will provide coding information as related to the Census Bureau's economic programs and can be a valuable adjunct resource document to the 1987 SIC Manual.

One of the major highlights of this publication is the subdivision of the 1987 SIC Manual's four-digit industries into greater detail for the Transportation, Communications, Electric, Gas, and Sanitary Services; Wholesale Trade; Retail Trade; and Services Divisions. Other highlights include the following:

- Industrial coverage of the Economic and Agriculture Censuses described within the context of each SIC division.
- Information on report forms used in collecting data for the Census Bureau's economic programs.
- Census Bureau's interpretation, in applying the establishment concept as defined in the 1987 SIC Manual.
- Narrative descriptions and establishment concepts of each SIC division including discussions on borderline activities which may or may not be covered within that division.
- A list of the industry codes, titles, and census form numbers used to collect data by industry, for each SIC division.
- An alphabetic index to industries for various activities and products, for each SIC division.
- A separate section on auxiliary establishments.

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